

Attorney Docket No. 2003P14814US  
Express Mail Label No. EV 330464045 US

**What Is Claimed Is:**

1. An active noise control system for controlling induction noise of an internal combustion engine, comprising:
  - a speaker; and
  - a controller for generating a control signal that drives said speaker, wherein said signal is based on at least one current vehicle operating condition, a determination of a first sound pressure for each order of sound generated by said engine during a run up of said engine and a determination of a second sound pressure computed for each of a plurality of operating conditions of said engine, wherein said signal controls each of order of sound generated by said engine independently to drive said speaker to generate an audio output to control said noise.
2. The system according to claim 1, wherein said signal is also based on a frequency response of a microphone and a speaker used in computing said first and second sound pressures.
3. The system according to claim 1, wherein said vehicle operating conditions are obtained by a transceiver from a vehicle databus.
4. The system according to claim 1, wherein said signal includes a gain factor for attenuating said sound.
5. The system according to claim 1, wherein said signal includes applying a gain factor

for enhancing said sound.

6. The system according to claim 1, wherein said signal includes a correction factor for each of said operating conditions.

7. The system according to claim 1, further including an amplifier for amplifying said signal.

8. The system according to claim 1 wherein said controller decomposes said first and second sound pressures and generates look-up tables.

9. The system according to claim 1 wherein said controller utilizes an algorithm that uses a Nyquist criterion.

10. The system according to claim 1 further including a time delay between said engine operating conditions.

11. An active noise control system for controlling induction noise of an internal combustion engine, comprising:

a speaker; and

a controller for generating a control signal that drives said speaker, wherein said signal is

Attorney Docket No. 2003P14814US  
Express Mail Label No. EV 330464045 US

based on at least one current vehicle operating condition, a determination of a first sound pressure for each order of sound generated by said engine during a run up of said engine, a determination of a second sound pressure computed for each of a plurality of operating conditions of said engine, and a determination of a frequency response of a microphone and speaker used in determining said first and second sound pressures, wherein said signal controls each of order of sound generated by said engine independently to drive said speaker to generate an audio output to control said noise.

12. The system according to claim 11, wherein said vehicle operating conditions are obtained by a transceiver from a vehicle databus.
13. The system according to claim 11, wherein said signal includes a gain factor for attenuating said sound.
14. The system according to claim 11, wherein said signal includes applying a gain factor for enhancing said sound.
15. The system according to claim 11, wherein said signal includes a correction factor for each of said operating conditions.
16. The system according to claim 11, further including an amplifier for amplifying said

Attorney Docket No. 2003P14814US  
Express Mail Label No. EV 330464045 US

signal.

17. The system according to claim 11, wherein said controller decomposes said first and second sound pressures and generates look-up tables.

18. The system according to claim 11, wherein said controller utilizes an algorithm that uses a Nyquist criterion.

19. The system according to claim 11, further including a time delay between said engine operating conditions.

20. An active noise control system for controlling induction noise of an internal combustion engine, comprising:

a speaker located within an air induction system;  
a controller for generating a control signal that drives said speaker, wherein said signal is based on at least one current vehicle operating condition, a determination of a first sound pressure for each order of sound generated by said engine during a run up of said engine, a determination of a second sound pressure computed for each of a plurality of operating conditions of said engine, and a determination of a frequency response of a microphone and speaker used in determining said first and second sound pressures, wherein said signal controls each of order of sound generated by said engine independently to drive said speaker to generate

Attorney Docket No. 2003P14814US  
Express Mail Label No. EV 330464045 US

an audio output to control said noise;

a sensor for providing a reference signal indicative of a camshaft position, wherein said reference signal is utilized in determining said first pressure; and

a transceiver for providing said at least one current vehicle operating condition to said controller.